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The use of television for instructional purposes in the schools of Hagerstown, Md. has created a change which has been profitable and advantageous to the schools. Pupil control is extremely high, administrators are able to re-deploy time and effort of teachers in more meaningful ways, lessons are superior in quality and rich in motivation, cost is not excessive or unreasonable, school programs have been broadened and enriched from grades 1-12, fewer teachers need to be employed despite increased enrollment, opportunities to provide in-service training have been sought and used, flexibility has been added to the school program, and staff has been enthusiastic.

An analysis of the learning process shows that television is useful for motivating and stimulating, providing information, demonstrating, showing implications, enriching backgrounds, providing common experiences and challenging pupils to assume more responsibility for their learning. Processes which cannot be cared for by television and which must be directed by a skillful teacher are: conducting classroom discussions, clearing up misunderstandings, developing and supervising long-range goals of the course or of the pupil, helping pupils apply knowledge learned, and evaluating pupil progress. Teaching teams of studio and classroom teachers have been organized to work together in developing lesson plans and preparing materials to be used in their cooperative teaching procedures. Television value depends upon the resourcefulness and abilities of those using it.

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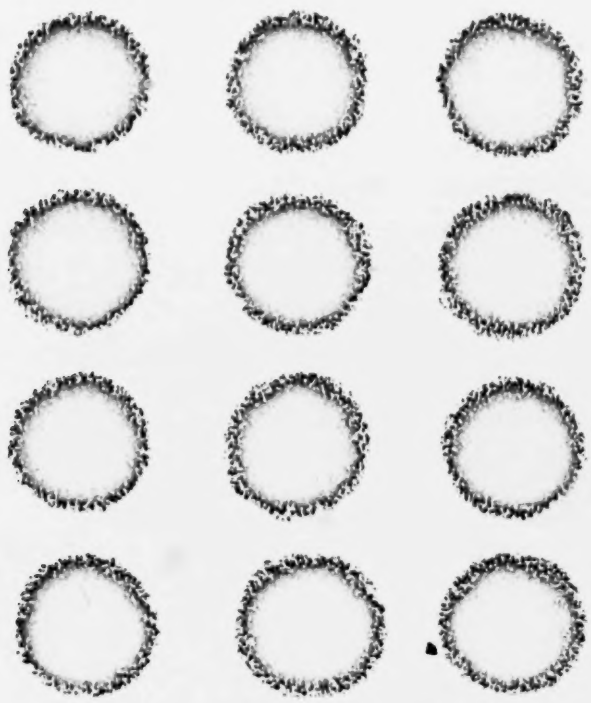
Closed-Circuit Television Instruction

For those of you who are not intimately acquainted with a rather typical rural community in the border state of Maryland, I think the following quotation from William Harlan Hale which appeared in *The Reporter* of May 30, 1957, might give some insight: "For the past nine months the old county seat town of



Hagerstown, Maryland, which last impinged on history when the Battle of Antietam was fought nearby, has become the focal point of a new American upheaval — this time in education." This quotation not only gives an insight into the community; it provides a fair introduction to my subject as well. The use of television in our school system has created an upheaval which has been profitable and advantageous to the schools.

The experiment in the use of television in Washington County has been made possible by the combined effort of four organizations. The Electronics Industry Association supplied most of the equipment that is used in the studios and in school buildings. The Chesapeake and Potomac Telephone Company of Maryland installed, serviced and operated the cable free-of-charge for a two-year period. The Fund for the Advancement of Education underwrote the major expense of personnel in carrying on the project. The Washington County Board of Education has supplied the necessary buildings, teachers and some materials of instruction.

The help from these four organizations has been generous and complete. There has been a gradual reduction in support from the first three organizations in order to enable the Washington County Board of Education to work into a position where it could support the operation of television after June, 1961. This has been accomplished and the use of television will continue during the school year 1961-62.

Briefly, this is how it all happened. As the Washington County Board of Education developed its school building program in the late '40s and early '50s, in-

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vestigation was made concerning the possibilities of including closed-circuit television equipment within the buildings. In February of 1956, largely as a result of this investigation, the Electronics Industry Association invited the Board to submit a proposal for an experiment to learn how such equipment could and would be used in the program of instruction.

The proposal stated that over a period of five years an all-out effort would be made to intensively study a number of ways of using such equipment. The primary concern, of course, was to discover

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how the quality of direct instruction in basic subject matter could be upgraded. Closely associated with this would be an effort to discover ways in which the school program could be motivated and enriched. The Board was anxious to discover any ways in which a closed-circuit television system could be used for the in-service training of teachers. It was also realized that such a facility might enable the superintendent's staff to do some unusual things in the way of interpreting the school program to the public. Administrators were anxious to discover ways in which this equipment would help in the redeployment of the teaching effort in order to make this effort pay greater dividends. The instructional staff was concerned to learn how local, state and national resources of many kinds could be used to greater advantage by teachers.

Two important system-wide procedures of operation were generally agreed upon in the summer of 1956 and have continued to operate with minor revisions to the end of the experimental period:

1. It was decided that television would be used as an integral part of the total instructional program. There was some apprehension at first that it might become an appendage which could not produce maximum results. In order to implement coordination, all principals, supervisors and teachers were involved in the planning and execution of the program.
2. The television equipment would be used to implement the educational program and not merely for entertainment purposes. In an effort to assure this, the studio teacher was placed in the role of the producer. One of his major concerns has been to assure that all the teaching by television is of the best quality for the boys and girls who are to receive it.

The use of television in the Washington County School System has opened up many avenues of investigation and study. Most of these have been primarily in the area of the techniques of teaching, but there are many implications for improved administration of schools as well.

Any conclusions that are suggested at this point must be tentative because the results will not be available until after June 30. However, there are certain trends that have appeared during the five years:

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municate lessons by television have a control over the attention of boys and girls in a phenomenal way. A part of this control is due to television itself and a part of it is due to procedures that are used. The fact that a television screen provides a framed reference which eliminates the extraneous from view no doubt contributes to concentration. The eye-to-eye contact that a teacher in front of a television camera has with each individual in the viewing classroom is significant. The skill with which a studio teacher uses this ability to a large extent determines its effectiveness. Quite probably the thorough preparation and planned motivation that a studio teacher has time to produce has a great deal to do with catching and holding attention.

2. There are opportunities for administrators to redeploy the time and effort of teachers in more meaningful ways if television is widely used in a school system. There are some concepts which children can learn as readily and as thoroughly in large groups as in small groups. The use of some large groups will enable the administrator to provide enough small groups for the teaching of those skills which can be mastered only in groups of limited size. This is a procedure that should develop gradually as teachers and principals see the opportunities and the values. Revolutionary reorganization for this purpose can and often is a very frustrating experience for teachers.
3. The quantity and quality of preparation which a teacher makes for the actual presentation of content has a direct bearing upon the readiness of children to master those concepts which are important. Television can be used in education in such a way that teachers are freed to produce lessons superior in quality and rich in motivation. Time alone will not accomplish this. It takes skill, knowledge and ability. Again the value of this medium depends upon its use and not upon its inherent quality.
4. Television can be used in a school system without excessive or unreasonable costs. On the other hand, it can be added purely as an enrichment device which is expensive. In most school systems ways would have to be found whereby this electronic medium can be used in lieu of the employment of additional personnel or the purchase of additional equipment. Its use has a place in such procedures as team teaching and the addition of some new courses to curriculum. If the Washington County Board of Education were to offer the same program to elementary boys and girls during the school year 1961-62 without television that it offered during the year 1960-61 with television, 105 additional teachers would have to be hired. This sounds as though a main purpose has been to save teachers. This has not been the case. An attempt has been made to use television to broaden the program within the limits of the budget.
5. During the five-year experiment, attempts have been made to broaden and enrich the program for all children in grades 1 through 12. Special instruction in art and music has been provided for all elementary children for the period of five years. Without the use of television this would have been an impossibility because the cost would have been

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prohibitive. Furthermore, specialized instruction in the basic skills of reading is available on a regular schedule for all elementary children who need such experiences. A further broadening of the program has been provided in instruction in French for boys and girls in grades 4, 5, and 6.

In the secondary school a serious effort has been made to enrich the basic program of instruction in ways that make it more meaningful and interesting to boys and girls. Furthermore, advanced courses are offered to those students who are interested. A course in college mathematics has been made available for three years to high school seniors who are college bound. Another resource for seniors has been the offering of two courses in English, one for college bound students, the other for terminal students. There seems to be no limit to the ways in which this medium can be used to supply courses that will meet the needs and interests of students.

6. As a result of the way television has altered the schedule, the Washington County School System is using fewer teachers than it otherwise would have employed in spite of increased enrollment. No teacher in our system has lost his job because of the use of television. There just have been fewer teachers employed and the number of uncertified teachers has been reduced. Since nationwide there is a shortage of 195,000 qualified teachers, there seems little reason to think that teachers who are properly certified will be unable to find employment.
7. Investigations have been carried on to find out whether or not the academic growth of youngsters during the experiment has been peculiar to youngsters of any certain type of ability. To date there is evidence to believe that children have grown commensurate with their ability to grow regardless of level of mental ability. Boys and girls with below average ability have made growth commensurate with their ability and to the same extent as the above average boys and girls have grown.
A continuous effort has been made to better use educational resources in a community. Such highly skilled persons as florists, metallurgists, druggists, etc., have been involved in lessons on numerous occasions. It has been found that the skills and abilities of these people can be utilized to the best advantage of 5,000 youngsters through television as readily as they can be utilized by a group of 30 in a face-to-face situation.
9. In spite of the fact that it was a new procedure, the use of television has been enjoyed by boys and girls. They have learned the importance of concentrating in order to learn. This has been difficult in some instances but has been recognized as valuable training in the long run. Boys and girls also appreciate the quality of preparation that has been provided through this medium. A rather frequent comment by boys and girls who get some of their instruction by television is that it is the best prepared teaching that they have received.
10. Opportunities to provide in-service training for teachers have been sought and used. One obvious contribution is that teachers have the daily opportunity to see others teach, which is an unusual experience. Usually the situations which

they observe are examples of carefully prepared lessons that are good to follow. Principals and supervisors alike contend that the quality of face-to-face teaching has improved since television instruction came in for a part of the day. Evidences of the successful use of television for teacher education has been gathered in a study made at Hunter College in the project, "Teacher Education TV Research Project."

11. Contrary to pre-conceived ideas, the use of television can add flexibility to a program for boys and girls. The converse of this can also be true unless the administrator is on the alert to prevent regimentation and excessive formality. For example, when all seniors are scheduled to receive instruction in one of two courses in English at the same period, students can be scheduled according to their interests and needs regardless of the course which they are taking. When 300 ninth grade students receive instruction in biology during the third period of the day, those 300 can be regrouped for teaching any way that the staff considers advantageous. There are also opportunities for students to receive more or less than the traditional number of periods of instruction in light of their greater or less need for help from teachers. If large viewing groups are arranged together with small viewing groups, many more opportunities for grouping are available.
12. The stimulation to an entire staff that results from the use of some new medium is phenomenal. The concomitants from such an experience are as valuable as the experiment itself. As a result of the use of television, many needs for revision in the curriculum become evident. Because of the focus that is placed on the content that is presented, a better scope and sequence is developed. Boys and girls who have achieved beyond the level of the group can be identified and challenged. New courses to better meet the needs of any and all children can be offered at a minimum of expense.

The current interest in the use of new media in teaching is causing educators to ask some searching questions, such as: Can the use of the machine, which has changed our whole industrial process, improve the educational program? Do these media which have brought about a revolutionary improvement in communication have implications for teaching procedures and school organization? Will the use of the new media regiment and regulate the educational program to the point where it loses it flexibility?

These, or similar questions, are being asked in many school systems throughout the land. As a result, inventions, equipment, media, and processes that were originally developed for industries or commerce are being analyzed to find if they have applications which will improve education. This surge of interest in professional investigation and experimentation is an encouraging positive influence that is concentrating attention on ways to improve the learning of children. Educators are not adopting these devices because they are new, nor are they ignoring them simply because they are new. Thoughtful administrators do not feel that every invention in the area of mass communication can necessarily improve the school program. Rather they are promoting investigations involving the application of new resources in the most functional way. There are rather important considerations

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1. Pertinent educational needs of all kinds can become challenges for a staff under the wise leadership of strong school administrators. Today the good administration of a school system includes more than the efficient organization of facilities, equipment, and personnel working under well thought out policies and procedures. Administration must do more than provide for the present situation. A need exists for continually applying new knowledge and tested procedures within the limitations of certain educational programs. The school administrator of 1961 is charged with the responsibility of finding ways to help the system utilize the increasing knowledge that is available. He is challenged to test all new developments to discover their value for the situation in which he finds himself. Present conditions are demanding more than ever that he maintain an inquiring attitude and keep his vision focused on future possibilities for improvement. His major responsibility is to make provision for initiating the study of projects and applying the findings of well-founded research.
2. Procedures that actually involve large numbers of personnel in a system tend to assure more valid results. School administrators feel that the most functional findings are obtained when as large a portion of the staff as possible is involved in the planning, carrying out and evaluating projects which are undertaken. A severe loss is sustained in any system when plans are decided on at the administrative level and the procedures worked out by a few individuals and handed down to principals, supervisors and teachers who are expected to put them into operation. Giving those who are working in a project the opportunity to identify themselves with it does much to improve operation. Understanding why something is being done, realizing that the procedure may make valuable contributions, insures a greater degree of cooperation and a more practical evaluation.
3. The careful pre-planning of a project tends to make for smoother operation and more profitable findings. Most of the studies indicate that the development of projects in the use of new media in education are more meaningful if they are based on the study of the needs and the resources of a given school system. This would include many of the things that good administrators are likely to do anyway, such as a study of test results, population trends, available facilities, gaps in the curriculum and courses of study for in-service training of teachers.
4. The wise use of labor saving devices can free the professional staff members for more rewarding activities. New devices are available for the scoring of tests, the processing of schedules, the duplicating and recording of information. The wise use of any or all of these can free teachers and other personnel from the non-teaching duties which frequently take too large a part of each day. More time needs to be found for teachers to develop the creative ideas which they possess.

Regardless of the great possibilities, little will be accomplished if a school administrator does not visualize what may be the outcomes and initiate action in those directions. Therefore, leaders in education should have knowledge of the various

studies that are being conducted and the research findings which show the potentials for all of the new media that could make a contribution to education. Administrators understand that much depends upon their own actions because significant improvement in the quality of education can be achieved only through their active leadership.

Many people object to changes in their established ways of procedure and avoid when possible new learning techniques, especially those associated with mechanical devices. Opportunity must therefore be provided to give teachers experience and confidence in working with new or different devices. Realization of his position in this kind of a situation will help an administrator to provide the kinds of opportunities for teachers that they need to overcome this handicap. Since no single device is a sure-fire remedy for educational ills, the use of any of them in the school program should be carefully planned. It is important to find the unique and special contributions which they can make to the program.

Pupils, accustomed as they are to learning in the conventional classroom, will need help in acquiring techniques of using the new medium effectively. The television screen gives the teacher an efficient means of controlling the attention of the pupils. It provides a special or central point of concentration for group instruction. It implements the development of good habits of sustained attention and careful observation. Unless lessons are planned to utilize this effect, it is lost. In and of itself television will not teach, amuse or entertain anyone.

Experiences involving a new medium should be integrated with all of the other activities of the school day. In spite of the tendency to frown upon new media because they are mechanical or technical, they can be used functionally. Television is not just a new audio-visual gadget. It is a medium of communication that gives the viewer an immediate and complete reproduction of what is happening. It is realistic and permits the viewer to participate in events with a sense of intimate association.

The use of television does not mean that pupils will sit passively watching the screen for most of the school day. Schools using television for instructional purposes can develop broad, overall programs that cover the basic curricular offerings. They limit, however, the total daily television experience of any one pupil. Television does not necessarily dominate the pupil's day but rather is integrated with the other important experiences. It thus becomes an additional kind of learning opportunity that seems to have many advantages for learners of all levels.

Pupils need a balanced program that contains many of the tested experiences that have been a part of good teaching for many years. Even though the new resources bring challenges and add other dimensions to the school day, they should not monopolize the program. Here then is the implication for administrators in coordinating the new opportunities for learning with the traditional means.

The new media increase the teacher's power and extend his abilities rather than replace him. As the telescope extends the power of the eye and the microphone amplifies the human voice, so does television increase the force of any teacher. It is important for teachers to understand that the newer educational media are devices that extend their power and provide them with opportunities to increase facilities for children. This understanding will affect the way in which the new media are used in any school system.

Each of these new resources can help with certain specific aspects of the learning situation. It is important that they remain resources and never attempt to take over

the total learning or teaching situation.

The teaching machine can provide drill exercises to help a pupil master a technique, thus saving teacher time for other aspects of teaching. It will allow the pupil to go over and over a process as often as necessary for mastery and at the same time free the teacher for other activities. Teaching machines can also help some pupils explore and learn on their own within the framework set by the teacher.

A television set does not replace the teacher or the need for the teacher. Television does not produce or teach lessons. When direct instruction is presented by television, a teacher is doing the teaching. What is taught and how it is taught depend on that teacher and are determined by the educational objectives of the school system in which he works. It should also be evident that while television does not replace the teacher, it makes possible the rearrangement of the teacher's time in the organization of the school schedule.

The application of television communication to teaching does not replace the teacher with an actor who needs no professional training or education. A lesson does not automatically become better, more forceful or more challenging because it is taught by television. Effective televised teaching depends on the ability of the teacher and his associated personnel to plan, to organized and to follow through on learning situations that are worthwhile and serve as an incentive to pupil action.

Specialized services can be provided through television for many elementary pupils without greatly increasing staff size. For example, it is possible to make one art instructor available to pupils in all the schools of a system instead of having specialists who travel from school to school.

The appropriate use of aspects of new media gives school administrators new ways of attacking educational problems. Providing teachers with more time for planning has been a real problem that seems to defy solution. There is a serious need for continuous curriculum development. To provide teachers with such time and opportunities to do the planning necessary for developing effective lessons and learning experiences has seemed impossible in the past. The problem has become increasingly difficult and important in this technical age and its rapid accumulation of new facts and knowledge. Content material must be carefully selected from a growing wealth of material and organized into lessons. Curriculum development and lesson planning require time that is usually not available unless definite provision is made in the teacher's schedule.

When the new media permit scheduling of larger groups for a part of the school day, provide means for individual study, handle routines and reduce non-teaching duties, teachers can rearrange their schedules and spend more time on the creative, necessary aspects of teaching. If television is used, it is important that the studio teachers have no assignment other than the televised lesson. They should devote full time to its preparation. They are able to plan, organize materials, construct visuals, make suggestions for follow-up activities, and still have time for personal contacts with classroom teachers and pupils.

Many benefits can be gained from such an arrangement. In most situations the elementary teacher has been primarily responsible for the entire teaching program. Now a studio teacher can do a part of the job for many in the subject areas that are televised. The classroom teacher has more time for the many other activities which are a part of his busy day.

When well planned, the use of new resources can provide more time for working with individual differences of pupils. During the televised portion of the lesson the classroom teacher has the opportunity

to study the reactions of the pupils. He can observe their difficulties and record suggestions to be used later in working with individual problems and needs. Some schools that are using television for instruction have analyzed the learning process as a basis for the work that is being done. They have found that television is useful for:

Motivating and stimulating pupils
Providing information
Demonstrating
Sequentially developing ideas
Showing implications
Enriching backgrounds
Raising questions
Providing common experiences
Suggesting learning activities
Challenging pupils to assume more responsibility for their learning

At the same time educators realize that education is more than a learning-about, looking-at, or reading-about situation. The following important processes cannot be cared for by television but must be directed in a face-to-face situation by a skillful teacher:

Conducting classroom discussions
Clearing up misunderstandings
Developing and supervising long-range goals of the course or of the pupil
Helping pupils apply what has been learned
Evaluating pupil progress

Since all these processes are important, teaching teams have been organized with a studio teacher responsible for the phases that television can do best and the classroom teacher responsible for those activities which seem to lend themselves better to direct personal contact with pupils.

Teaching teams can plan the general framework of the lessons for each instructional area to be included in the program. The classroom and studio teachers can work together in developing lesson plans and preparing material to be used in their cooperative teaching procedures.

The new media have positive implications for education, but are in no sense panaceas. Their potentials and their limitations at one and the same time affect the contribution which they can make. There never have been and never can be universal panaceas to quickly solve educational problems. There are resources which can be used in general and specific ways. These resources can bring additional ways of learning to enrich the program for children. On the other hand, these devices have characteristics which place limitations on the purposes they can serve. These limitations do not remove their potential for improvement. Rather they give proper perspective to the many things that are possible.

In every controlled experiment of teaching by television alone, without any instruction from a classroom teacher, students have learned as much as from classroom instruction. With this conclusion established by research, school teachers, administrators, and supervisors have an unusual opportunity to re-tool the machinery of their educational institutions for the greatest possible benefit to students. There seems to be practically no limit to the ways in which the program of education can be broadened and enriched with the aid of television, and this without decidedly increasing the per-pupil costs. Whether or not this is accomplished will depend upon the intensive re-evaluation of procedures by educators and the realingnment of time, effort and personnel in the light of current findings. Television is a powerful means of communication. In and of itself it will do nothing to amuse, to entertain, or to educate. The sole value of the instrument depends upon the resourcefulness and abilities of the people who use it.